

<b>Zoology</b>	
<b>Unit –I</b>	<b>Animal Diversity</b> -Linnaeus - origin of classification, taxonomic characters and reconstruction of phylogeny- major sub-divisions of the animal kingdom and animal architecture- Protozoa, Platyhelminthes, Arthropods and Molluscs - Pisces- Amphibians, Reptiles- Birds-Mammals - Structural and functional adaptations. Structural organization of animals.
<b>Unit -II</b>	<b>Physiology, Biochemistry and Cell and Molecular Biology</b> - Respiration, excretion and digestion –Physiological function – General structure and types of muscles- Neurons, nature of nerve impulse. Protein, Carbohydrate and lipid metabolism –Enzymes, Hormones and Vitamins - Types, classification and properties. Structure and function of Cell organelles- Cell Division and Cell Cycle- DNA Structure and Replication, Repair and Recombination- Regulations of gene expression-Cellular communication.
<b>Unit-III</b>	<b>Genetics and immunology:</b> Definition and scope of genetic- Chromosome mapping, aneuploidy, euploidy, haploidy and polyploidy- Concept of gene-gene expression, gene expression control in eukaryotic, prokaryotes and phages. Elements of immune system: Primary and secondary- mechanism of humoral and cell mediated immune responses. Infectious diseases, hypersensitivity - Types I, II, III and IV; autoimmune disorder; immunodeficiency diseases.
<b>Unit IV</b>	<b>Evolution, Developmental Biology and fisheries</b> - Darwin, Wallace, Natural selection and theories of inheritance-Nature and origin of species - Principles and processes of evolution- Human origin and evolution.- Basic concepts of development Biology- Gametogenesis, Fertilization & Cleavage-Economically important marine and freshwater fishes -Migratory fishes - Migration in fishes- Recent concepts in fisheries management-Different types of culture –Types of hatchery - Live feed production. Bio-security, SPF - Major disease in Aquaculture .
<b>Unit V</b>	<b>Ecology and conservation biology-</b> Ecological pyramids - food chain and their significance - Bio-geochemical cycle -Population and community ecology – Wild life sanctuaries and National parks threatened species (IUCN categories)- Threats to biodiversity and conservation of biodiversity -wild life conservation – Biotic features of terrestrial, freshwater, estuarine, marine habitats - Types of environmental pollution Effect of climate change, global warming - Pollution management - application of biotechnology in pollution control.

#### Reference Books

1. Pillay, T. V. R., and Kutty. M. N. 2005. Aquaculture: Principles and Practices, Wiley-Blackwell
2. Crew, F. A. 2006. Animal Genetics - The Science of Animal Breeding , Lightning Source Inc.
3. Thomas M. Devlin., 2006. Textbook of Biochemistry with Clinical Correlations, 6<sup>th</sup> edition, JohnWiley & Sons Inc., Publications
4. Murray, R.K. Granner, D.K. and Rodwell.V.M. 2006. Harpers Illustrated Biochemistry, 28<sup>th</sup> edition, The McGraw-Hill companies, Inc.
5. Kuby, Kindt, Goldsby and Osborne. 2007. Immunology, W.H.Freeman and Company.

6. Gordon A. Wyse , Margaret Anderson., 2008. Animal Physiology, Second Edition by Richard W. Hill.
7. Odum EP.2008. Fundamentals of Ecology, Cengage Learning ( Thompson ), USA.
8. David Eisenhour, Allan Larson, Susan Keen, Larry Robers, Cleveland Hickman Jr., 2009. Animal Diversity, McGraw Hill International, Boston.
9. Gilbert, S. F., and Knisely. K..2009. Developmental Biology, Sinauer Associates Inc.
10. Hunter, L. E., 2009. The Process of life- An Introduction to Molecular Biology, The MIT press, USA.
11. Travis, J. 2016. Evolutionary Biology: Genome Evolution, Speciation, Coevolution and Origin of Life. Edited by Pierre Pontarotti. Cham (Switzerland) and New York: Springer.